

CLAIMS

What is claimed is:

1. A system for generating difference information between a first binary image of an electronic device and a second binary image of the electronic device, the system comprising:

a bank order determination unit adapted to selectively employ at least one differential evolution technique to determine the bank order.

2. The system according to claim 1, wherein the first binary image and the second binary image comprise at least one of firmware and software in memory banks of the electronic device and the bank order determination unit being adapted to employ genomes to represent bank orders of memory banks of the electronic device.

3. The system according to claim 2, wherein the bank order determination unit is also adapted to employ genomes to represent other additional parameters and wherein the system is also adapted to determine optimum values for the bank order and other additional parameters employing at least one differential evolution technique.

4. The system according to claim 3, wherein the other additional parameters are selected from instructions associated with at least one of RLE instructions, CPY instructions, and DUP instructions.

5. The system according to claim 4, further comprising an evolve population module adapted to evolve a population of genomes by at least one generation, wherein the evolve population module is also adapted to evaluate the population and sort the population before evolving the population to subsequent generations, and the evolve population module is adapted to selectively create crossover genomes as part of an evolution process and store the crossover genomes for subsequent processing.

6. A method for generating an update package comprising at least one difference information adapted to be employed to update at least one of firmware and software in an electronic device, the method comprising:

determining a bank order for generation of difference information; and

employing the bank order to generate the update package and also to update the at least one of firmware and software in the electronic device.

7. The method according to claim 6, wherein the bank order comprises an optimal bank order and wherein determining an optimal bank order further comprises employing at least one genetic computation technique, wherein the at least one genetic computation technique comprises:

creating a new population of genomes;

evaluating the population of genomes;

evolving the population of genomes; and

repeating evaluating and evolving the population at least until:

a determination is made that there are no other results to be found;

a threshold is reached; or

a user cancels generation of the genomes.

8. The method according to claim 7, wherein creating a new population comprises:

adding seeds to the population of genomes, the seeds comprising at least one of a forward bank order seed and a backward bank order seed; and

filling the population with randomly created genomes.

9. The method according to claim 7, wherein creating a new population comprises:

seeding the population of genomes by building a forward bank order for a required number of banks;

selectively storing a CRC value for the forward bank order for subsequent access;

placing the forward bank order into the genomes;

building a reverse order of banks;

storing the CRC value for the reverse bank order; and

placing the reverse order of banks into the genomes.

10. The method according to claim 7, wherein evaluating the population of genomes comprises testing for a best desired outcome.

11. The method according to claim 10, wherein evaluating the population of genomes further comprises at least one of determining weights for the genomes and determining an evaluation function adapted to be employed to compare and selectively order the genomes in the population.

12. The method according to claim 7, wherein evolving the population of genomes comprises:

mating parents to create at least one of crossover and mutated genomes; and

filling the population of genomes with randomly created genomes.

13. The method according to claim 7, wherein, during the evolving of the population of genomes, two elite genomes are employed as parents for a new genome and a crossover technique is employed by the bank order determination unit after ensuring that both parents are not identical.

14. The method according to claim 13, wherein the parent genomes are mated by mixing respective parent genome bank order weights.

15. The method according claim 7, wherein an elite genome and a non-elite genome are employed as parents for a new genome.

16. The method according to claim 7, wherein two genomes comprising at least one of elite and non-elite genomes are randomly selected as parents to create a new genome.

17. A method of generating an update package for updating at least one of firmware and software in a mobile handset, the method comprising:
determining a bank order;
optionally determining values for generation parameters;
generating the update package incorporating the bank order.

18. The method according to claim 17, further comprising:
determining a bank order employing at least one genetic evolution technique;
determining values for generation parameters employing the at least one genetic evolution technique;
generating the update package incorporating the bank order.

19. The method according to claim 17, further comprising incorporating verification information in a generated update package facilitating integrity checking in a mobile handset receiving the generated update package.

20. The method according to claim 17, further comprising incorporating authentication information in a generated update package facilitating authentication of a source of the generated update package in a mobile handset receiving the generated update package.

21. The method according to claim 17, further comprising incorporating information in a generated update package facilitating fault tolerant update in a mobile handset receiving the generated update package.